

FACT SHEET FOR NPDES PERMIT WA-000092-2

FACILITY NAME Port Townsend Paper Corporation

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SUMMARY

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INTRODUCTION

The Federal Clean Water Act (FCWA, 1972, and later modifications, 1977, 1981, and 1987) established water quality goals for the navigable (surface) waters of the United States. One of the mechanisms for achieving the goals of the Clean Water Act is the National Pollutant Discharge Elimination System permits (NPDES permits), which is administered by the Environmental Protection Agency (EPA). The EPA has delegated responsibility to administer the NPDES permit program to the State of Washington on the basis of Chapter 90.48 RCW which defines the Department of Ecology's authority and obligations in administering the wastewater discharge permit program.

The regulations adopted by the State include procedures for issuing permits (Chapter 173-220 WAC), water quality criteria for surface and ground waters (Chapters 173-201A and 200 WAC), whole effluent toxicity testing and limits (Chapter 173-205 WAC), and sediment management standards (Chapter 173-204 WAC). These regulations require that a permit be issued before discharge of wastewater to waters of the state is allowed. The regulations also establish the basis for effluent limitations and other requirements which are to be included in the permit. One of the requirements (WAC 173-220-060) for issuing a permit under the NPDES permit program is the preparation of a draft permit and an accompanying fact sheet. Public notice of the availability of the draft permit is required at least thirty days before the permit is issued (WAC 173-220-050). The fact sheet and draft permit are available for review (see Appendix A--Public Involvement of the fact sheet for more detail on the Public Notice procedures).

The fact sheet and draft permit have been reviewed by the Permittee. Errors and omissions identified in this review have been corrected before going to public notice. After the public comment period has closed, the Department will summarize the substantive comments and the response to each comment. The summary and response to comments will become part of the file on the permit and parties submitting comments will receive a copy of the Department's response. The fact sheet will not be revised. Comments and the resultant changes to the permit will be summarized in Appendix D--Response to Comments.

<u>GENERAL INFORMATION</u>	
Applicant	Port Townsend Paper Corporation
Facility Name and Address	Port Townsend Paper Corporation 100 Paper Mill Road, Port Townsend, WA 98368
Type of Facility:	Unbleached Kraft Pulp and Paper Mill
SIC Code	Pulp Mill SIC # 2611 Paper Mill SIC # 2621
Discharge Location	Waterbody name: Port Townsend Bay Outfalls 001 002 003 Latitude: 48° 05' 20" N 48° 05' 35" N 48° 05' 34" N Longitude: 122° 47' 36" W 122° 47' 38" W 122° 47' 40" W
	The sanitary wastewater is discharged after receiving secondary treatment and disinfection via Outfall 005 into the effluent from the process wastewater treatment stream and discharged through Outfall 001 with the treated process wastewater.
Water Body ID Number	WA-17-0030 Segment 09-17-01

DESCRIPTION OF THE FACILITY

HISTORY

The Port Townsend Pulp and Paper mill and paper machine number 1 were built in 1927 by National Paper. A second paper machine was added in 1929. In 1940 the mill was purchased by Crown Zellerbach and sold to Haindl in 1983. The mill was acquired by PTPC Acquisition Co. Inc. in late 1997. The mill employs approximately 325 people at the Port Townsend mill site.

INDUSTRIAL PROCESS

A new recycling plant was added to recycle old corrugated cardboard (OCC) into pulp in the fall of 1996. During the two-year period 2002-2003, the mill produced an average of 941 tons of pulp per day of which 315 tons/day is OCC pulp and 626 tons/day is unbleached kraft.

DISCHARGE OUTFALLS

The treated process wastewater from the mill receives primary treatment and secondary treatment before being discharged via outfall 001 to Port Townsend Bay. The outfall extends about 1200 feet from shore into Glen Cove, the westerly most part of Port Townsend Bay into about 40 feet of water. The process wastewater flow is continuous and averaged 12.5 MGD during 2002-2003. The major pollutants of concern are biochemical oxygen demand (BOD₅), total suspended solids (TSS), and pH. The sanitary waste is discharged into outfall 005 after receiving secondary treatment via an activated sludge package plant. The sanitary waste is disinfected with sodium hypochlorite prior to being introduced into outfall 001. The flow from

the sanitary sewer averaged 2,500 gallons/day during 2002-2003. The sanitary wastewater flow is a very small portion (0.02%) of the total flow from outfall 001. Outfall 002 discharges about 3 MGD of turbine condenser cooling water and outfall 003 discharges unused salt water from the salt water chest overflow into the Port Townsend Bay. The flow for outfall 003 is not measured. Temperature is the only pollutant of concern for outfall 002 and there are no pollutants of concern for the unused salt water return from 003. Neither the turbine cooling water nor the saltwater overflow contain any constituents associated with the kraft or OCC pulping processes. All stormwater flow is routed to the secondary treatment system through the primary treatment system. The following tables are based on effluent monitoring data reported in the monthly discharge monitoring reports and characterize the monitored parameters for the mill's discharges during 2002-2003:

OUTFALL 001: PROCESS WASTEWATER

Parameter	Monthly average	Monthly Average Range
Flow (MGD)	12.5 MGD	9.8 – 15MGD
pH	7.3	7-8 SU
BOD ₅	1,704 lbs./day	1200 - 2,400 lbs./day
TSS	3,788 lbs./day	2100 - 7,600 lbs./day
Temperature	76 °F	65 - 83 °F

OUTFALL 002: POWER TURBINE CONDENSER COOLING WATER

Parameter	Average of Monthly Maximum	Monthly Maximum Range
Temperature	53 °F	<51* - 75 °F

* Continuous recording chart only reads down to 50 °F.

OUTFALL 003: SALT WATER CHEST OVERFLOW

(not monitored)

OUTFALL 005: SANITARY WASTEWATER

Parameter	Two years averaged	Monthly Average Range
Flow (MGD)	0.0025 MGD	0.0014 - 0.0048 MGD
pH	7	5.0 - 10.0 SU
BOD ₅	11 MG/L	3 - 30 MG/L

TSS	10 MG/L	4 - 32 MG/L
FECAL COLIFORM	-	1 - 177 COUNT/100 ML

PERMIT STATUS

The previous permit for this facility was issued on July 6, 1999. The previous permit placed effluent limitations on BOD₅, TSS, whole effluent toxicity, and pH for outfall 001, temperature for outfall 002, and BOD₅, TSS, total chlorine residual, and fecal coliform for outfall 005.

An application for permit renewal was submitted to the Department on February 5, 2004 and accepted by the Department on February 24, 2004.

SUMMARY OF COMPLIANCE WITH THE EXISTING PERMIT

The last Class II compliance inspection was conducted on April 14, 2004. The permittee was found to be in compliance with their permit limits.

During the history of the previous permit, the Permittee has remained in overall compliance based on Discharge Monitoring Reports (DMRs) submitted to the Department and inspections conducted by the Department. The company had one process effluent daily maximum TSS exceedance in December 2003 and one process effluent monthly average TSS exceedance in April 2002. The sanitary system experienced daily maximum and monthly average BOD₅ exceedances in October 2003. The sanitary system also experienced TSS daily maximum and monthly average exceedances in December 2003.

WASTEWATER CHARACTERIZATION

The Permittee's effluent analysis results submitted with the renewal application indicated the presence of the pollutants listed below at concentrations above detection limits. Of the pollutants listed, ammonia, chromium, copper, nickel, and zinc are considered potentially toxic substances and are assigned water quality standards under WAC 173-201A-040. These particular substances are addressed later in this fact sheet under the toxic pollutant subcategory.

Table 1: Process Effluent Wastewater Characterization presented as maximum daily values.

Parameter	Concentration
BOD ₅	50 mg/L
TSS	172 mg/L
Ammonia	4.29 mg/l
Nitrate-Nitrite(as N)	0.18 mg/l
Surfactants	0.07 mg/L

Parameter	Concentration
Aluminum	1.9 mg/l
Antimony	0.0009 mg/L
Boron	0.98 mg/l
Chromium	0.7 mg/L
Copper, Total	0.005 mg/L
Iron (total)	4.75 mg/l
Magnesium (total)	78.1 mg/l
Manganese	0.51 mg/l
Nickel, Total	0.011 mg/L
Zinc, Total	0.01 mg/L
Oleic acid/Linoleic acid	41 mg/L
Phenols, Total	0.15 mg/L
Phosphorous	0.97 mg/l
Sulfate (as SO ₄)	426 mg/l
O & G	4 mg/L

SEPA COMPLIANCE

There are no SEPA requirements for this permit.

PROPOSED PERMIT LIMITATIONS

Federal and State regulations require that effluent limitations set forth in a NPDES permit must be either technology- or water quality-based. Technology-based limitations are based upon the treatment methods available to treat specific pollutants. Technology-based limitations are set by regulation or developed on a case-by-case basis (40 CFR 125.3, and Chapter 173-220 WAC). Water quality-based limitations are based upon compliance with the Surface Water Quality Standards (Chapter 173-201A WAC), Ground Water Standards (Chapter 173-200 WAC), Whole Effluent Toxicity Testing and Limits (Chapter 173-205 WAC), Sediment Management Standards (Chapter 173-204 WAC) or the National Toxics Rule (Federal Register, Volume 57, No. 246, Tuesday, December 22, 1992). The more stringent of these two limits must be chosen for each of the parameters of concern. Each of these types of limits is described in more detail below.

The limits in this permit are based in part on information received in the application. The effluent constituents in the application were evaluated on a technology- and water quality-basis. The limits necessary to meet the rules and regulations of the State of Washington were determined and included in this permit. Ecology does not develop effluent limits for all pollutants that may be reported on the application as present in the effluent. Some pollutants are

not treatable at the concentrations reported, are not controllable at the source, are not listed in regulation, and/or do not have a reasonable potential to cause a water quality violation. If significant changes occur in any constituent, as described in 40 CFR 122.42(a), the Permittee is required to notify the Department of Ecology.

The analyses of the need for limits and the derivation of limits where needed are described in the following sections for each outfall.

OUTFALL 001

BASIS FOR TECHNOLOGY-BASED EFFLUENT LIMITATIONS

Technology-based limitations are set by regulations or developed on a case by case basis. EPA periodically evaluates specific industries, such as pulp and paper, and publishes federal effluent guidelines which represent technology-based effluent limitations. In Washington, state law imposes a requirement to provide all known available and reasonable methods of treatment (AKART), and this requirement is functionally an overlay on the federal requirements. AKART may dictate more stringent technology-based limits than the federal effluent guidelines.

The applicable federal effluent guidelines for the pulp and paper industry were first proposed on December 17, 1993 in a rule known as "The Cluster Rule." Following extensive review and public comments, the Cluster Rule was promulgated by EPA on April 15, 1998. The final rule is published in 40 CFR Part 430.

The applicable federal effluent guidelines are 6 years old. Ecology has reviewed the treatability data base, and information concerning the high demonstrated removal efficiencies for Port Townsend Paper Company's primary and secondary treatment system. Ecology has concluded that any further treatment beyond secondary treatment would only add a few percentage points to the removal efficiencies for BOD₅ and TSS. Based on this review, Ecology has determined that Port Townsend Paper Company's secondary treatment with an aerated settling basin (ASB) is determined to be equivalent to AKART for the conventional pollutants for this wastewater stream and the technology based limits in the federal ELGs are the appropriate technology based limits.

In recognition that the federal ELGs will be more than 10 years old when this permit expires in 2009, Ecology is requiring a treatment efficiency study in this permit which will be used to evaluate compliance with AKART in the subsequent permit.

The applicable portions of 40 CFR Part 430 for Port Townsend Paper Company are:

Subpart C for the Unbleached Kraft Subcategory and includes: best practicable control technology available (BPT) at 40 CFR 430.32, best conventional pollutant control technology (BCT) at 40 CFR 430.33, and New Source Performance Standards (NSPS) at 40 CFR 430.35. Each of these categories provides technology based limits in terms of pounds per day of biochemical oxygen demand (BOD₅) and total suspended solids (TSS) per thousand pounds of product produced. The technology based limits vary for several different products produced under the Unbleached Kraft Subcategory. For this

subcategory, EPA defined BCT to be the same as BPT. The limits for NSPS are more stringent than for BPT.

Subpart J for the Secondary Fiber Non-Deink Subcategory and includes: best practicable control technology available (BPT) at 40 CFR 430.102, best conventional pollutant control technology (BCT) at 40 CFR 430.103, and New Source Performance Standards (NSPS) at 40 CFR 430.105. Each of these categories provides technology based limits in terms of pounds per day of biochemical oxygen demand (BOD₅) and total suspended solids (TSS) per thousand pounds of product produced. The technology based limits vary for several different products produced under the Secondary Fiber Non-Deink Subcategory. For this subcategory, EPA defined BCT to be the same as BPT. The limits for NSPS are more stringent than for BPT.

DERIVATION OF TECHNOLOGY BASED EFFLUENT LIMITS

The production rates over the last two years have been fairly constant, and have averaged 941 tons per day (tpd) which is equal to 1,882,000 pounds per day (ppd). The production has included unbleached Kraft and recycle of old corrugated cardboard (OCC), which comes under the Secondary Fiber Non-Deink Subcategory. The Department requires NSPS for Port Townsend Paper Company for all of the 315 tpd (630,000 ppd) production in the Secondary Fiber Non-Deink Subcategory. Limits for 450 tpd (900,000 ppd) production in the Unbleached Kraft Subcategory are associated with a baseline production capacity from before New Source Performance Standards applied and are established based on BPT. Limits for 176 tpd (353,000 ppd) of the production in the Unbleached Kraft Subcategory are based on NSPS.

The baseline production BPT limits for conventional pollutants are calculated based on 450 tpd (900,000 ppd) for unbleached Kraft using 40 CFR 430.32 of Subpart C. The BPT limits allow a maximum for any 1 day of 5.6 pounds BOD₅ and 12.0 pounds TSS per 1,000 pounds of product. The BPT limits allow an average of daily values for 30 consecutive days of 2.8 pounds BOD₅ and 6.0 pounds TSS per 1,000 pounds of product.

The NSPS limits for conventional pollutants for 176 tpd (352,000 ppd) production of unbleached Kraft paper are calculated using 40 CFR 430.35 of Subpart C, specifically for facilities where bag papers and other mixed products are produced. The NSPS limits allow a maximum for any 1 day of 5.0 pounds BOD₅ and 9.1 pounds TSS per 1,000 pounds of product. The NSPS limits allow an average of daily values for 30 consecutive days of 2.71 pounds BOD₅ and 4.8 pounds TSS per 1,000 pounds of product. The new NSPS effluent guidelines for unbleached Kraft paper for BOD₅ and TSS are more stringent than for existing sources.

Since the OCC line was built after 1982, the entire allowance for conventional pollutants for the OCC line is calculated based on the NSPS section of 40 CFR 430.105 of Subpart J (corrugating medium furnish subdivision). The 315 tpd (630,000 ppd) of OCC production permitted under the NSPS standards allow a maximum for any 1 day of 3.9 pounds BOD₅ and 4.4 pounds TSS per 1,000 pounds of product. The NSPS for the OCC allow an average of daily values for 30 consecutive days of 2.1 pounds BOD and 2.3 pounds TSS per 1,000 pounds of product. The NSPS effluent guidelines are more stringent than for existing sources.

The applicable effluent guidelines vary slightly in the applicable pH limits. The NSPS based effluent guidelines for both the NSPS unbleached Kraft and the NSPS OCC production set limits for pH within the range of 5.0 to 9.0. The existing production based unbleached Kraft set limits for pH within the range of 6.0 to 9.0. Although the NSPS ELGs allow a greater range of pH, Port Townsend Paper Company will be required to operate within the more stringent 6.0 to 9.0 pH range.

The previous permit anticipated an increase in the mill production from the OCC process line during the permit term. Consequently, the permit limits were tiered for four levels of production. The proposed permit does not contain tiered limits because the production has been very stable during the 2002-2003 timeframe and reflects recent OCC production. This permit proposes limits based on federal effluent guidelines applied to historical production over the 2002-2003 timeframe.

Effluent guidelines allowances for the type of production are given below:

	BOD ₅ 30 day avg lbs/1000 lbs	BOD ₅ daily max lbs/1000 lbs	TSS 30 day avg lbs/1000 lbs	TSS daily max lbs/1000 lbs
Existing Kraft	2.8	5.6	6	12
NSPS Kraft	2.71	5	4.8	9.1
NSPS OCC	2.1	3.9	2.3	4.4

The production used for each applicable type of production is given below:

	Incremental Kraft Tons/day	Incremental OCC tons/day	Total production Kraft Tons/day	Total production OCC tons/day	Total combined production tons/day
Production					
Base (Existing)	450				
(NSPS)	176	315	626	315	941

The limits are calculated using the production indicated for each type of production. The effluent limits are summarized below:

	BOD ₅ Monthly Average	BOD ₅ Daily Maximum	TSS Monthly Average	TSS Daily Maximum
Allowance (lbs/day)	4,793	9,257	8,539	16,775

BASIS FOR SURFACE WATER QUALITY-BASED EFFLUENT LIMITATIONS

In order to protect existing water quality and preserve the designated beneficial uses of Washington's surface waters, WAC 173-201A-060 states that waste discharge permits shall be conditioned such that the discharge will meet established Surface Water Quality Standards. The

Washington State Surface Water Quality Standards (Chapter 173-201A WAC) is a state regulation designed to protect the beneficial uses of the surface waters of the state. Surface water quality-based effluent limitations may be based on an individual waste load allocation (WLA) or on a WLA developed during a basin wide total maximum daily loading study (TMDL).

NUMERICAL CRITERIA FOR THE PROTECTION OF AQUATIC LIFE

"Numerical" water quality criteria are numerical values set forth in the State of Washington's Water Quality Standards for Surface Waters (Chapter 173-201A WAC). They specify the levels of pollutants allowed in the receiving water while remaining protective of aquatic life.

Numerical criteria set forth in the Water Quality Standards are used along with chemical and physical data for the wastewater and receiving water to derive the effluent limits in the discharge permit. When surface water quality-based limits are more stringent or potentially more stringent than technology-based limitations, they must be used in a permit.

NUMERICAL CRITERIA FOR THE PROTECTION OF HUMAN HEALTH

The U.S. EPA has promulgated 91 numeric water quality criteria for the protection of human health that are applicable to Washington State (EPA 1992). These criteria are designed to protect humans from cancer and other disease and are primarily applicable to fish and shellfish consumption and drinking water from surface waters.

NARRATIVE CRITERIA

In addition to numerical criteria, "narrative" water quality criteria (WAC 173-201A-030) limit toxic, radioactive, or deleterious material concentrations below those which have the potential to adversely affect characteristic water uses, cause acute or chronic toxicity to biota, impair aesthetic values, or adversely affect human health. Narrative criteria protect the specific beneficial uses of all fresh (WAC 173-201A-130) and marine (WAC 173-201A-140) waters in the State of Washington.

ANTIDEGRADATION

The State of Washington's Antidegradation Policy requires that discharges into a receiving water shall not further degrade the existing water quality of the water body. In cases where the natural conditions of a receiving water are of lower quality than the criteria assigned, the natural conditions shall constitute the water quality criteria. When the natural conditions of a receiving water are of higher quality than the criteria assigned, the natural conditions shall be protected. More information on the State Antidegradation Policy can be obtained by referring to WAC 173-201A-070.

CRITICAL CONDITIONS

Surface water quality-based limits are derived for the waterbody's critical condition, which represents the receiving water and waste discharge condition with the highest potential for adverse impact on the aquatic biota, human health, and existing or characteristic water body uses.

MIXING ZONES

The Water Quality Standards allow the Department of Ecology to authorize mixing zones around a point of discharge in establishing surface water quality-based effluent limits. Both "acute" and "chronic" mixing zones may be authorized for pollutants that can have a toxic effect on the aquatic environment near the point of discharge. The concentration of pollutants at the boundary of these mixing zones may not exceed the numerical criteria for that type of zone. Mixing zones for toxicants can only be authorized for discharges that are receiving all known, available, and reasonable methods of prevention, control and treatment (AKART) and in accordance with other mixing zone requirements of WAC 173-201A-100.

The National Toxics Rule (EPA, 1992) allows mixing zones to be used to meet human health criteria. Ecology has decided to use the chronic mixing zone for human health criteria.

DESCRIPTION OF THE RECEIVING WATER

The facility discharges to Port Townsend Bay. Port Townsend Bay is designated as a Class A receiving water in the vicinity of the outfall. Port Townsend Bay is not on the state's 303(d) list of water bodies failing to meet water quality standards. Other nearby point sources include the city of Port Townsend and the Naval Facility on Indian Island. Significant nearby non-point sources include farms and boat mooring. Characteristic uses include the following: industrial water supply; fish migration; fish and shellfish rearing, spawning and harvesting; wildlife habitat; primary contact recreation; sport fishing; boating and aesthetic enjoyment; commerce and navigation. Water quality of this class shall markedly and uniformly exceed the requirements for all or substantially all uses.

The Department has reviewed extensive monitoring records for Port Townsend Bay and determined that the ambient temperature, dissolved oxygen, fecal coliform bacteria and pH meet the water quality standards for the designated class A marine water quality criteria given in Chapter 173-201A WAC. Data for turbidity and toxicants are not available for Port Townsend Bay with the exception of some metals data obtained by Battelle in 1984. The Department will use the designated class A marine water quality criteria (as described below) for this water body in the proposed permit. The discharges authorized by this proposed permit are protective of the existing high quality water and should not cause a loss of beneficial uses.

SURFACE WATER QUALITY CRITERIA

Applicable criteria are defined in Chapter 173-201A WAC for aquatic biota. In addition, U.S. EPA has promulgated human health criteria for toxic pollutants (EPA 1992). Criteria for this discharge are summarized below:

Fecal Coliforms	Not exceed both a geometric mean of 14 organisms/100 mL or have more than 10% of all sample used in calculating the geometric mean greater than 43 colonies/100 mL
Dissolved Oxygen	Shall exceed 6 mg/L. When natural conditions such as upwelling occur, causing the dissolved oxygen to be depressed near or below 6 mg/L, natural dissolved oxygen levels may be degraded by up to 0.2 mg/L by human activities

Temperature	Shall not exceed 16 °C due to human activities. When natural condition exceed 16.0 °C, no temperature increases will be allowed which will raise the receiving water temperature by greater than 0.3 °C. Incremental temperature increases resulting from point source activities shall not, at any time, exceed $t=12/(T-2)$, where "t" represents the maximum permissible temperature increase measured at a mixing zone boundary; and "T" represents the background temperature as measured at a point or points unaffected by the discharge and representative of the highest ambient water temperature in the vicinity of the discharge.
pH	7.0 to 8.5 standard units with a human-caused increase within the above range of less than 0.5 units.
Turbidity	Less than 5 NTU above background when the background is 50 NTU or less, or less than a 10% increase when background is more than 50 NTU.
Toxics	No toxics in toxic amounts (see Appendix C for numeric criteria for toxics of concern for this discharge)

SURFACE WATER QUALITY-BASED LIMITS FOR NUMERIC CRITERIA

Pollutant concentrations of ammonia, chromium, copper, nickel and zinc in the proposed discharge exceed water quality criteria with technology-based controls that the Department has determined to be AKART. Therefore the Department considered whether the discharge qualified for a mixing zone in accordance with WAC 173-201A-100.

WAC 173-201A-100(2) requires a discharger to fully apply AKART prior to being authorized a mixing zone.

PTPC is providing AKART.

WAC 173-201A-100(3) requires mixing zone determinations to consider critical discharge conditions.

Dilution modeling was evaluated by PTPC in 1994 using the U.S. EPA's Plume dilution model. The modeling used a maximum effluent flow of 22.3 MGD. The dilution modeling used the worst case water column density stratification from a total of 27 different density profiles obtained at different times of the year in Port Townsend Bay. The dilution modeling used a lower 10 percentile current for modeling acute dilution and a 50 percentile current for modeling chronic dilution. The modeling determined conservative dilution factors at distances equal to the acute and chronic mixing zone boundaries provided in WAC 173-201A-100(7)(b) and (8)(b). The chronic mixing zone used in the modeling extended 245 feet in any direction from the diffuser, while the acute mixing zone extended 24.5 feet in any direction from the diffuser. The worst case dilution factors determined from the modeling resulted in an acute dilution factor of 64 and a chronic dilution factor of 77.

Use of the above dilution factors based on a maximum effluent flow of 22.3 MGD represents a more critical dilution than would currently be expected because PTPC has implemented conservation measures that have reduced the effluent flow to a maximum of only 15 MGD.

The mixing zone determinations were based on conservative, critical discharge conditions.

WAC 173-201A-100(4) states that no mixing zone shall be granted unless supporting information clearly indicates the mixing zone would not have a reasonable potential to cause a loss of sensitive or important habitat, substantially interfere with the existing or characteristic uses of the water body, result in damage to the ecosystem, or adversely affect public health as determined by the department.

Water quality standards are established based on EPA criteria. EPA's criteria were developed based on toxicity tests with numerous organisms, and are set based on protecting 95% of the species tested, unless important species are among the most sensitive 5%, in which case the standards are set to protect the most sensitive species. Water quality standards include relevant durations of exposure and are not based on instantaneous exposures. Acute standards generally are based on a 1-hour exposure at the criteria level and chronic standards generally are based on a 4-day exposure at the criteria level. The dilution modeling under critical conditions showed that the acute dilution was attained in less than 6 minutes and the chronic dilution in about 25 minutes. Drifting and non-strong swimming organisms in the water column would not be affected because they cannot stay in the plume close to the outfall long enough to be affected. Strong swimming fish could, but they can also avoid. Benthic organisms are not affected because the plume is buoyant and rises in the water column, thus preventing exposures to benthic organisms. Sediment studies conducted for an earlier permit showed no problems with the sediments near the discharge. Whole effluent toxicity (WET) testing provides a means of evaluating the cumulative toxicity of an effluent. WET testing performed by PTPC passes the performance test requirements of WAC 173-205-050(2)(a) and consequently PTPC does not require WET limits.

When considering all of the above, the mixing zone does not have a reasonable potential to cause a loss of sensitive or important habitat, substantially interfere with the existing or characteristic uses of the water body, result in damage to the ecosystem, or adversely affect public health.

WAC 173-201A-100(5) requires that water quality criteria shall not be violated outside of the boundary of a mixing zone.

The reasonable potential to exceed analyses in Appendix C makes this demonstration.

WAC 173-201A-100(6) requires that the size of a mixing zone and the concentrations of pollutants present shall be minimized.

Ecology recognizes that the size constraints provided in WAC 173-201A-100(7) and (8) are among the most limiting in the country. Ecology recognizes that at any given time, the effluent plume actually utilizes only a portion of the acute and chronic mixing zone,

which effectively minimizes the volume of water actually involved in mixing. Because tidal currents change direction, the entire volume of the zone is needed to accommodate changes in plume orientation. Ecology also recognizes that the plume rises through the water column as it mixes and that consequently most of the water volume in the mixing zone below the depth at which the mixed effluent traps, is not involved. It is impractical to attempt to specify in the permit the actual, much more limited volume in which the dilution occurs as the plume rises, traps and moves with the current. However, the conservative modeled dilution factors implicitly reduce the mixing zone volume from the volume described in the permit to just the volume actually utilized by the plume. There are no concerns with the mixing zone encroaching onto sensitive habitat or overlapping with other mixing zones. For these reasons, the size of the mixing zone and the concentrations of the pollutants present are appropriately and effectively minimized.

WAC 173-201A-100(7)(b) and (8)(b) provide mixing zone sizing constraints specific to estuarine waters.

The boundaries of the mixing zones were sized in accordance with the regulatory requirements.

WAC 173-201A-100(8) requires that a zone where acute criteria may be exceeded is allowed only if it can be demonstrated to the department's satisfaction the concentration of, and duration and frequency of exposure to the discharge, will not create a barrier to the migration or translocation of indigenous organisms to a degree that has the potential to cause damage to the ecosystem.

The acute mixing zone is not located where it could create a barrier to the migration or translocation of indigenous organisms. The dilution modeling provided by PTPC demonstrated that the acute mixing occurs very rapidly as the less dense effluent rises through the water column due to both the diffuser design and the effluent's buoyancy. The acute mixing occurs in a matter of a few minutes and the duration and frequency of exposure to elevated concentrations by any drifting, or non-strong swimming organisms is minimized because the organisms simply cannot stay in one place while the plume moves past them. Because the mixing zone poses no barrier to organisms, strong swimming species are able to avoid the plume. Exposure to elevated concentrations by benthic organisms is avoided because the plume rises in the water column.

Because the requirements of WAC 173-201A-100 have been satisfied, mixing zones are authorized in accordance with the following geometric configurations and dilution factors.

The acute mixing zone boundary extends 24.5 feet measured from any diffuser port. The chronic dilution zone boundary extends 245 feet from any diffuser port. The dilution factors of effluent to receiving water that occur within these zones have been determined at the critical condition by the use of U.S. EPA's Plume dilution model. The dilution factors have been determined to be:

	Acute	Chronic
Aquatic Life	64	77
Human Health, Carcinogen		77
Human Health, Non-carcinogen		77

CONSIDERATION OF SURFACE WATER QUALITY-BASED EFFLUENT LIMITS FOR NUMERIC CRITERIA

Pollutants in an effluent may affect the aquatic environment near the point of discharge (near field) or at a considerable distance from the point of discharge (far field). Toxic pollutants, for example, are near-field pollutants--their adverse effects diminish rapidly with mixing in the receiving water. Conversely, a pollutant such as BOD₅ is a far-field pollutant whose adverse effect occurs away from the discharge even after dilution has occurred. Thus, the method of calculating surface water quality-based effluent limits varies with the point at which the pollutant has its maximum effect.

The derivation of surface water quality-based limits also takes into account the variability of the pollutant concentrations in both the effluent and the receiving water.

NUMERIC CRITERIA

BOD₅--Under critical conditions there is no predicted violation of the Water Quality Standards for Surface Waters. Therefore, the technology-based effluent limitation for BOD₅ was placed in the permit.

Temperature--The impact of the discharge on the temperature of the receiving water was modeled by simple mixing analysis at the critical condition. The upper 90th percentile temperature from just the highest annual temperature profiles of the upper 45 feet of the water column from 1995 to 2002 at Ecology's monitoring station PTH005 in Port Townsend Bay was 12.82 °C. Significantly, the discharge from outfall 001 is at 45 feet, and the effluent mixing begins at depth and progresses upward through the water column, which is why it is appropriate to consider the temperatures of the relevant portion of the water column. 12.82 °C was used as the ambient temperature in order to evaluate the temperature effects of the effluent at the edge of the chronic mixing zone. The highest effluent temperature reported for 2002-2003 was 31.1 °C. The predicted temperature, at the boundary of the chronic mixing zone is 13.06°C and the incremental rise is 0.24 °C. At 12.82 °C, the temperature standards allow a rise in temperature of 1.11 °C at the edge of a mixing zone. The reader is reminded again that the actual maximum effluent flow reported during the 2002-2003 timeframe was 15 MGD. The flow used to derive the dilution factors used here to evaluate the effluent temperature effect on the receiving water is 23 MGD. The analysis is thus extremely conservative and predicts no violation of the Water Quality Standards for Surface Waters. Therefore, no effluent limitation for temperature was placed in the proposed permit. However, continuous monitoring, recording, and reporting of the temperature are placed in the permit. This condition was in the previous permit.

pH--Because of the high buffering capacity of marine water, compliance with the technology-based limits of 6.0 to 9.0 will assure compliance with the Water Quality Standards for Surface Waters.

Turbidity--The impact of turbidity was evaluated based on the range of turbidity in the effluent and turbidity of the receiving water. Due to the large degree of dilution, it was determined that the turbidity criteria would not be violated outside the designated mixing zone.

Toxic Pollutants--Federal regulations (40 CFR 122.44) require NPDES permits to contain effluent limits for toxic chemicals in an effluent whenever there is a reasonable potential for those chemicals to exceed the surface water quality criteria. This process occurs concurrently with the derivation of technology-based effluent limits. Facilities with technology-based effluent limits defined in regulation are not exempted from meeting the Water Quality Standards for Surface Waters or from having surface water quality-based effluent limits.

As reported in the permittee's application submitted for permit renewal, the following chemicals with water quality criteria were detected in the discharge above the detection limit: ammonia, chromium, copper, nickel, and zinc. A reasonable potential analysis (See Appendix C) was conducted on these parameters to determine whether effluent limitations would be required in this permit.

The determination of the reasonable potential for ammonia, copper, nickel, zinc and chromium to exceed the water quality criteria was evaluated with procedures given in EPA, 1991 at the critical condition. The 10 % current speed was used as the critical condition for acute dilution ratio and the median current speed was used for the chronic dilution ratio. The parameters used in the critical condition modeling are as follows: acute dilution factor of 64 and a chronic dilution factor 77, receiving water temperature 12.82 °C. Battelle Marine Sciences Laboratory Study, 1984 found total copper at 1.41 µg/L and total zinc at 1.36 µg/L in Port Townsend's Marina and total chromium at 0.299 µg/L and total nickel at 0.292 µg/L at Pillar Point. The metal values from Battelle will be considered as background. Water quality criteria for metals in Chapter 173-201A WAC are based on the dissolved fraction of the metal. These analyses were taken close to the Port Townsend discharge and are representative of the diffuser's environment. Because the metal water quality standards are for dissolved metals, using total metals data in place of dissolved metals data makes the evaluation more conservative.

A determination of the discharge's potential to cause an exceedance of the water quality standards was conducted as required by 40 CFR 122.44(d). Using the ambient background data that was available for copper, zinc, chromium, and nickel and the effluent data submitted by the permittee in the application, the reasonable potential determination was evaluated with procedures given in the Technical Support Document for Water Quality-Based Toxics Control (EPA/505/2-90-005) and the Department's Permit Writer's Manual (Ecology Publication 92-109, July, 1994 with updates through July 2002). The determination indicated the discharge has no reasonable potential to cause a violation of water quality standards, thus effluent limits for toxic pollutants are not warranted. The reasonable potential analyses are provided in Appendix C.

Note that the reasonable potential analyses are intended to predict maximum expected effluent concentrations, and the resultant concentrations at the edges of the respective mixing zones. The analyses result in a comparison with applicable water quality criteria and are based on a conservative, protective approach using standard EPA procedures.

The Permittee will be required to perform three priority pollutant scans of the effluent during the next permit cycle to help characterize the effluent for the next permit evaluation.

WHOLE EFFLUENT TOXICITY

The Water Quality Standards for Surface Waters require that the effluent not cause toxic effects in the receiving waters. Many toxic pollutants cannot be detected by commonly available

detection methods. However, toxicity can be measured directly by exposing living organisms to the wastewater in laboratory tests and measuring the response of the organisms. Toxicity tests measure the aggregate toxicity of the whole effluent, and therefore this approach is called whole effluent toxicity (WET) testing. Some WET tests measure acute toxicity and other WET tests measure chronic toxicity.

Acute toxicity tests measure mortality as the significant response to the toxicity of the effluent. Dischargers who monitor their wastewater with acute toxicity tests are providing an indication of the potential lethal effect of the effluent to organisms in the receiving environment.

Chronic toxicity tests measure various sublethal toxic responses such as retarded growth or reduced reproduction. Chronic toxicity tests often involve either a complete life cycle test of an organism with an extremely short life cycle or a partial life cycle test on a critical stage of one of a test organism's life cycles. Organism survival is also measured in some chronic toxicity tests.

Accredited WET testing laboratories have the proper WET testing protocols, data requirements, and reporting format. Accredited laboratories are knowledgeable about WET testing and capable of calculating an NOEC, LC₅₀, EC₅₀, IC₂₅, etc. All accredited labs have been provided the most recent version of the Department of Ecology Publication # WQ-R-95-80, *Laboratory Guidance and Whole Effluent Toxicity Test Review Criteria* which is referenced in the permit. Any Permittee interested in receiving a copy of this publication may call the Ecology Publications Distribution Center 360-407-7472 for a copy. Ecology recommends that Permittees send a copy of the acute or chronic toxicity section(s) of their permits to their laboratory of choice.

In accordance with Section S9 and S10 of NPDES Permit No. WA 000092-2, Port Townsend Paper Corporation (PTPC) submitted the acute and chronic effluent characterization reports for toxicity, in conjunction with the permit renewal application. As specified in the permit, because PTPC does not have permit limits for acute or chronic toxicity, the final effluent was tested once in the last summer and once in the last winter prior to submission of the application for permit renewal. All species used in the initial acute effluent characterization were used, and full test results are summarized below.

The purpose of the acute tests is to determine the presence and amount of lethal toxicity. The purpose of the chronic tests is to define toxic effects based on long-term exposures to wastewater effluent and to determine dosages associated with toxic and biological responses.

In previous tests (1999 – 2000), acute toxicity was tested with the freshwater species *Pimephales promelas* (fathead minnow) and *Daphnia pulex* (daphnid). These tests established that PTPC would not be subject to effluent limits for acute toxicity because the median survival for both species in 100% effluent was greater than 80% and because each test exhibited greater than 65% survival in 100% effluent. The effluent met the acute performance based standards of chapter 173-205 WAC.

In the 1999 – 2000 chronic toxicity tests, using the saltwater species *Atherinops affinis* (topsmelt), *Mysidopsis bahia* (mysid shrimp), and *Mytilus edulis* (common mussel), the no observed effect concentration (NOEC) was greater than the acute critical effluent concentration (ACEC) of 1.6% effluent for each test. Thus, when compared to the ACEC, the control exhibited no statistically significant difference, using hypothesis testing at the 0.05 level of significance.

The effluent met the chronic performance based standards of chapter 173-205 WAC and PTPC was not subject to effluent limits for chronic toxicity.

Since the completion of these acute and chronic bioassays, PTPC has used some of the salt water cooling water that runs through the evaporators as a cooling water to reduce the inlet temperature to the ASB. This resulted in an increase in the flow of saltwater to the aerated stabilization basin, from which final effluent samples are taken. The increase in saltwater has resulted in a corresponding increase in the salinity of the final effluent, which is discharged into a marine environment, Port Townsend Bay. The salinity of PTPC's effluent was heightened further by freshwater conservation efforts initiated in late August 2003. From late August to late October, PTPC operated a cooling tower to significantly reduce fresh water use. In addition, PTPC implemented conservation measures that continue to the present. Although saltwater use has not increased during periods of freshwater conservation, its proportion has, thereby increasing the salinity. The theoretical average salinity from 8/26/03 to 10/29/03 was 4.5 parts per thousand (ppt), and from 10/30/03 to 1/9/04, it averaged 4.0 ppt.¹ By comparison, salinity during the first round of bioassays (using data from 1/1/00 – 3/31/00) averaged 0.7 ppt and 3.0 ppt (4/1/00 – 7/31/03). Actual salinity data from effluent used for the bioassays completed in the 2003–2004 timeframe range from 5.7 to 7.1 ppt, well above the LC50 for the daphnid, and within range of the LC50 for the fathead minnow. This expected toxicity based on salinity was exhibited in acute toxicity bioassay results for freshwater species.

As could be expected based on this increase in the saltwater component of the final effluent, freshwater species were affected by the salinity in the 2003/2004 summer and winter samples. Because of the changes in salinity, the freshwater species designated in PTPC's 1999 NPDES permit are no longer appropriate for determining acute toxicity. The salinity of the effluent, regardless of any other factors, is above the LC50 for the daphnid (1.47 ppt NaCl), and it approaches the LC50 for the fathead minnow (6.57 ppt NaCl).²

Because of these changes, PTPC initiated acute bioassay testing using both the freshwater species specified in the 1999 permit for acute toxicity testing and marine species appropriate to this region. The results are summarized in Table 1 below.

Table 1. Acute Bioassay Survival (% in 100% Effluent) and LC50 Results (% Effluent)

	Freshwater Species				Saltwater Species			
	Fathead Minnow		Daphnid		Silverside Minnow		Mysid Shrimp	
	Survival	LC50	Survival	LC50	Survival	LC50	Survival	LC50
Aug-99	70	>100	100	>100	–	–	–	–
Sep-99	100	>100	95	>100	–	–	–	–
Oct-99	90	>100	100	>100	–	–	–	–

¹ Salinity values are calculated using a value of 30 ppt for saltwater, as measured by AMEC Earth & Environmental, January 2004, and 0 ppt for freshwater, combined with the measured flows for these systems.

² USEPA, 1998. Ambient Water Quality Criteria for Chloride --1988. EPA 440/5-88-001

Nov-99	93.3	>100	85	>100	—	—	—	—
Dec-99	96.7	>100	100	>100	—	—	—	—
Jan-00	100	>100	95	>100	—	—	—	—
Feb-00	100	>100	100	>100	—	—	—	—
Mar-00	66.7	>100	100	>100	—	—	—	—
Apr-00	100	>100	95	>100	—	—	—	—
May-00	100	>100	95	>100	—	—	—	—
Jun-00	100	>100	100	>100	—	—	—	—
Jul-00	100	>100	85	>100	—	—	—	—
Sep-03	72.5	>100	0	70.7	—	—	—	—
Nov-03*	98	>100	0	36.6	88	>100	90	>100
Jan-04	68	>100	0	66	100	>100	98	>100

* *Ceriodaphnia dubia* was used instead of *Daphnia pulex*, which was used for all other freshwater acute toxicity tests.

In addition, in January 2004, PTPC conducted acute toxicity testing in receiving water from Port Townsend Bay (30 ppt) and in receiving water adjusted to the salinity of final effluent samples (6.2 ppt). The results shown in Table 2 demonstrate the toxicity of saline water to the freshwater species.

Table 2. Receiving Water Results for Acute Bioassay Survival (% in 100% Sample) and LC50 (% Sample) demonstrating toxicity of saline water to freshwater species.

	Receiving Water				Adjusted Receiving Water			
	Fathead Minnow		Daphnid		Siverside Minnow		Daphnid	
	Survival	LC50	Survival	LC50	Survival	LC50	Survival	LC50
Jan-04	0	27.8	0	11.4	98	>100	0	46.6

Chronic toxicity tests were performed August–September 1999, November 1999, February 2000, June 2000, September 2003, and January 2004. In all cases, the no observed effect concentration (NOEC) was greater than the acute critical effluent concentration (ACEC = 1.6%) for each test. Therefore, there were no statistically significant differences between the controls and the ACEC using hypothesis testing at the 0.05 level of significance. The chronic toxicity tests are summarized in Table 3.

Table 3. Chronic Bioassay NOEC Results (Reported as Percent Effluent)

Test Date	Topsmelt		Mysid Shrimp		Bivalve	
	Survival	Growth	Survival	Growth	Highest Test Conc., Survival	Development
8/99-9/99	100	100	100	50	6	3
11/99	100	100	100	100	6	6
2/00	100	50	100	25	6	3
6/00	100	50	100	50	6	6
9/03	100	33	100	100	50	12.5
1/04	100	100	100	100	50	12.5

In accordance with WAC 173-205-060, the Permittee will not be required to repeat the effluent characterization for the following reason. PTPC conducted WET testing which established that toxicity to freshwater species was attributable to salinity. PTPC discharges to a marine environment. WET testing on marine species indicated no toxicity at levels requiring additional WET characterization. PTPC has met the performance based requirements for acute and chronic WET from chapter 173-205 WAC and does not require effluent limits for WET.

PTPC will be required to test for both acute and chronic toxicity once in the last summer and once in the last winter prior to submission of the application for permit renewal.

HUMAN HEALTH

Washington's water quality standards now include 91 numeric health-based criteria that must be considered in NPDES permits. These criteria were promulgated by the U.S. EPA in its National Toxics Rule (Federal Register, Volume 57, No. 246, Tuesday, December 22, 1992). The Department has determined that the applicant's discharge does contain several chemicals of concern (antimony, nickel, zinc and total phenols) based on priority pollutant data provided with the permit application. Although detected, these were all at levels that were orders of magnitude lower than the applicable human health-based criteria and consequently have no reasonable potential to cause exceedances of human health-based standards in the receiving water..

SEDIMENT QUALITY

The Department has promulgated aquatic sediment standards (Chapter 173-204 WAC) to protect aquatic biota and human health. These standards state that the Department may require the Permittee to evaluate the potential for the discharge to cause a violation of applicable standards (WAC 173-204-400). The permittee performed sediment monitoring in the vicinity of their outfall in the last permit. The Department has determined through the review of this monitoring that the discharge has no reasonable potential to violate the Sediment Management Standards. Therefore, no sediment monitoring is required in the permit.

GROUND WATER QUALITY

The Department has promulgated Ground Water Quality Standards (Chapter 173-200 WAC) to protect beneficial uses of ground water. Permits issued by the Department shall be conditioned in such a manner so as not to allow violations of those standards (WAC 173-200-100). The aeration basin is about 1000 feet from the shoreline of Glen Cove. The diffuser is located about 1200 feet from shore. Since, the aeration basin is up-gradient from the salt-water body; the possible discharge into the ground water would travel in the direction of this water body. Since the permittee discharges the treated wastewater into this water body either by direct discharge at outfall 001 or through the soil under the aeration basin to the water body, the outcome is the same. The Permittee has a very slight potential to discharge to ground water that would not be discharged into Glen Cove. The ground water is contiguous with the receiving water. The mass discharged for BOD₅ and TSS is based on the influent flow to the treatment system. Therefore, the monitoring data account for all of the mass discharged. Therefore, there will no ground water limitations or monitoring requirements placed in the permit during this permitting phase.

SHELLFISH PROTECTION

There are geoduck clam and public shellfish beds located about one half mile from the outfall. At this time the Department of Health has not been requested to certify these beds for harvest. If and when certification is requested, Ecology will require the permittee to perform a fecal coliform study on their outfalls in coordination with the Department of Health.

The Department of Health performed a discharge assessment in 2001-2002, with a final report sent to Ecology on June 24, 2002. Their findings were that no fecal samples greater than 10 organisms/100 ml were found and the outfall does not impact the two nearest geoduck tracks (04200 and 04250). Based on the Department of Health's evaluation they established the minimum closure zone of 300 yards.

COMPARISON OF PROPOSED OUTFALL 001 EFFLUENT LIMITS WITH THE EXISTING PERMIT ISSUED JULY 6, 1999:

Existing Limits				
Production Unbleached Kraft and OCC paper (Tons/day)	BOD ₅ (LBS/d)		TSS (LBS/d)	
	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum
≤ 750	3,960	7,710	7,530	14,850
≤ 850	4,380	8,490	7,990	15,730
≤ 950	4,800	9,270	8,450	16,610
≤ 1,000	5,010	9,660	8,680	17,050
Proposed Limits				

Production Unbleached Kraft and OCC paper (Tons/day)	BOD ₅ (LBS/d)		TSS (LBS/d)	
	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum
<u>≤ 941</u>	4,793	9,257	8,539	16,775

OUTFALL 002

BASIS FOR AND DERIVATION OF TECHNOLOGY-BASED EFFLUENT LIMITATIONS

There are no federal effluent guidelines for this discharge. The effluent consists of non-contact salt water cooling water, where the only thing that is added is heat. The temperature limit from the current permit allows for a Maximum Daily temperature limit of 25 °C (77 °F) as an hourly average. The temperature is further managed by a requirement for continuous monitoring of temperature, a temperature alarm set at 21.1 °C (70 °F), and a requirement to take corrective action whenever the alarm sounds. Hence, the normal discharge condition will be less than 21.1 °C and temperature excursions above 21.1 °C will be brief.

Ecology makes the best professional judgment (BPJ) determination that the temperature management requirements in the current permit constitute AKART.

BASIS FOR SURFACE WATER QUALITY-BASED EFFLUENT LIMITATIONS

In order to protect existing water quality and preserve the designated beneficial uses of Washington's surface waters, WAC 173-201A-060 states that waste discharge permits shall be conditioned such that the discharge will meet established Surface Water Quality Standards. The Washington State Surface Water Quality Standards (Chapter 173-201A WAC) is a state regulation designed to protect the beneficial uses of the surface waters of the state. Surface water quality-based effluent limitations may be based on an individual waste load allocation (WLA) or on a WLA developed during a basin wide total maximum daily loading study (TMDL).

The general discussions related to Outfall 001 pertaining to 1) numerical criteria for the protection of aquatic life, 2) numerical criteria for the protection of human health, 3) narrative criteria, 4) antidegradation, 5) critical conditions, 6) mixing zones, and 7) description of the receiving water, are all applicable to Outfall 002.

SURFACE WATER QUALITY CRITERIA

The only relevant applicable criteria for this discharge is the Class A Marine Water temperature standard in WAC 173-201A-030(2)(iv) which is summarized below:

Temperature	Shall not exceed 16.0 °C due to human activities. When natural
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condition exceed 16.0 °C, no temperature increases will be allowed which will raise the receiving water temperature by greater than 0.3 °C. Incremental temperature increases resulting from point source activities shall not, at any time, exceed $t=12/(T-2)$, where "t" represents the maximum permissible temperature increase measured at a mixing zone boundary; and "T" represents the background temperature as measured at a point or points unaffected by the discharge and representative of the highest ambient water temperature in the vicinity of the discharge.

CONSIDERATION OF SURFACE WATER QUALITY-BASED LIMITS FOR NUMERIC CRITERIA

Pollutants in an effluent may affect the aquatic environment near the point of discharge (near field) or at a considerable distance from the point of discharge (far field). Toxic pollutants, for example, are near-field pollutants--their adverse effects diminish rapidly with mixing in the receiving water. Conversely, a pollutant such as BOD₅ is a far-field pollutant whose adverse effect occurs away from the discharge even after dilution has occurred. Thus, the method of calculating surface water quality-based effluent limits varies with the point at which the pollutant has its maximum effect.

The derivation of surface water quality-based limits also takes into account the variability of the pollutant concentrations in both the effluent and the receiving water. In the case of temperature, which is the only parameter of concern to outfall 002, the standard has several components that must be evaluated.

NUMERIC CRITERIA

Temperature--The effluent temperature data shows that the effluent occasionally exceeds the numeric Class A temperature standard of 16.0 °C. Temperature data for Port Townsend Bay shows that even in the warmest periods, the surface waters of the Bay meet the numeric temperature standard without needing to evaluate the second part of the temperature standard that pertains to when the natural temperatures exceed the numeric standard. The third part of the standard describes the maximum allowable temperature increase at a mixing zone as a formula based on the receiving water temperature. A background temperature of 13.94 °C was calculated based on the upper 90th percentile of the highest temperature profiles from the surface to 2 meters from Port Townsend Bay based on Ecology's monitoring station PTH005 for the years 1995 through 2002. For a background temperature of 13.94 °C, the maximum allowable increase based on the formula in the water quality standards is 1.01 °C. The maximum permitted effluent temperature of 25 °C requires a dilution factor of 13 to meet the allowable mixing zone increase in the standards.

The department believes the necessary dilution occurs within a relatively short distance and concludes that the discharge complies with the water quality standards for temperature. Therefore, the existing temperature limit is continued in the permit.

WHOLE EFFLUENT TOXICITY

The discharge is of a once through non-contact cooling water without the use of biocides. In accordance with WAC 173-205-050(2)(a) the department concludes that there is no need to characterize the effluent toxicity.

HUMAN HEALTH

The discharge is of a once through non-contact cooling water without the use of biocides. The department has determined that this discharge does not contain chemicals of concern.

SEDIMENT QUALITY

The Department has determined that this discharge has no reasonable potential to violate the State's Sediment Quality Standards in Chapter 173-204 WAC.

GROUND WATER QUALITY

This discharge has no discharge to ground and therefore no limitations are required based on potential effects to groundwater.

SHELLFISH PROTECTION

There is no reasonable potential for this discharge to contribute bacteria to the water column, so the discharge is not a concern for shellfish protection.

COMPARISON OF PROPOSED EFFLUENT LIMITS WITH THE EXISTING PERMIT Issued July 6, 1999

The proposed limits are the same as the existing limits.

	EFFLUENT LIMITATIONS: OUTFALL # 002	
Parameter	Average Monthly	Maximum Daily^a
Temperature	-	77 °F (25 °C)

- ^a Hourly average. The temperature alarm level shall be maintained at 70 °F (21.1 °C). Immediate corrective action shall be taken in response to an alarm.

OUTFALL 003*BASIS FOR AND DERIVATION OF TECHNOLOGY-BASED EFFLUENT LIMITATIONS*

The discharge is just a return flow of unused salt water from the salt water chest overflow which is part of the cooling water system. Nothing (including heat) is added to this water which comes from Port Townsend Bay and is returned to the Bay.

There are no federal effluent guidelines for this discharge. Ecology makes the BPJ determination that direct return of the unused salt water via outfall 003 is AKART.

BASIS FOR SURFACE WATER QUALITY-BASED EFFLUENT LIMITATIONS

Evaluation of surface water quality considerations is not relevant to this discharge.

OUTFALL 005

BASIS FOR TECHNOLOGY-BASED EFFLUENT LIMITATIONS

Federal technology based effluent limits are found in the Secondary Treatment Regulation (40 CFR Part 133). Ecology adopted a state regulation defining secondary treatment requirements (Chapter 173-221 WAC). The state regulation is the same as the federal requirements for concentration based limits for BOD₅, TSS and pH. The state regulation also imposes load limits for BOD₅ and TSS as well as a technology based limit for Fecal Coliform bacteria. The state regulation constitutes AKART.

Port Townsend Paper Company's sanitary wastewater treatment system is subject to the same technology-based effluent limitations as all municipal wastewater treatment plants in the state.

DERIVATION OF TECHNOLOGY-BASED EFFLUENT LIMITS

Unlike the technology based industrial effluent limits which are keyed to various production processes, the technology based limits for sanitary wastewater treatment systems are based on concentrations as follows:

<u>Pollutant Parameter</u>	<u>30-day Average Concentration</u>	<u>7-day Average Concentration</u>	<u>7- and 30- day Average Load Limits</u>
Biological Oxygen Demand (BOD ₅)	30 mg/L	45 mg/L	lbs/day
Total Suspended Solids (TSS)	30 mg/L	45 mg/L	lbs/day
Fecal Coliform (geometric means)	200 organisms/ 100 mL	400 organisms/ 100 ml	NA

The concentration limits for BOD₅, TSS, and fecal coliform bacteria are applied to PTPC's outfall 005. Because the discharge is very small (0.0025 MGD), and because the discharge ultimately is into the outfall 001 shared by the process waste water discharges with much higher BOD and TSS loadings, load limits are not imposed.

BASIS FOR SURFACE WATER QUALITY-BASED EFFLUENT LIMITATIONS

The general discussions related to Outfall 001 pertaining to 1) numerical criteria for the protection of aquatic life, 2) numerical criteria for the protection of human health, 3) narrative

criteria, 4) antidegradation, 5) critical conditions, 6) mixing zones, 7) description of the receiving water, 8) surface water quality criteria, are all applicable to Outfall 005.

SURFACE WATER-QUALITY BASED LIMITS FOR NUMERIC CRITERIA

Pollutant concentrations of residual chlorine exceed water quality criteria with technology based controls that the Department has determined to be AKART. Therefore, the Department considered whether the discharge qualified for a mixing zone under WAC 173-201A-100. The Sanitary Treatment Plant is at AKART. The Sanitary Treatment Plant discharge at Outfall 005 is to the Outfall 001 line, and the 0.0025 million gallons per day (mgd) Sanitary Treatment Plant effluent is combined with the average flow of 12.5 mgd treated process wastewater prior to discharge to Port Townsend Bay. A dilution factor of 5000 occurs within the Outfall 001 line, after which additional dilution to the acute and chronic mixing zone for 001 occurs. The information presented earlier supporting the mixing zone for 001 pertains for the Sanitary Treatment Plant as well.

NUMERIC CRITERIA

BOD₅--Under critical conditions there is no predicted violation of the Water Quality Standards for Surface Waters. Therefore, the technology-based effluent limitation for BOD₅ was placed in the permit.

Temperature--Under critical conditions there is no predicted violation of the Water Quality Standards for Surface Waters.

Turbidity-- Under critical conditions there is no predicted violation of the Water Quality Standards for Surface Waters.

Toxic Pollutants--Based on the Department's assessment of mixing for Outfall 001, and the substantial mixing of the sanitary effluent with the treated process wastewater in the Outfall 001 line before discharge to Port Townsend Bay, the total residual chlorine limits of 0.1 to 5 mg/L from the prior permit may be continued as the discharge does not have a reasonable potential for exceedance of the chlorine criteria outside the allowable mixing zones in the receiving water.

WHOLE EFFLUENT TOXICITY

Toxicity caused by unidentified pollutants is not expected in the effluent from this discharge as determined by the screening criteria given in Chapter 173-205 WAC. Therefore, no WET testing is required in the proposed permit.

HUMAN HEALTH

The Department has determined that the Sanitary Treatment Plant discharge does not contain chemicals of concern based on existing knowledge.

SEDIMENT QUALITY

The Department has determined that this discharge has no reasonable potential to violate the State's Sediment Standards Chapter 173-204 WAC.

GROUND WATER QUALITY

This discharge has no discharge to ground and therefore no limitations are required based on potential effects to groundwater.

SHELLFISH PROTECTION

There are geoduck clam and public shellfish beds located about one half mile from the outfall. At this time the Department of Health has not been requested to certify these beds for harvest. If and when certification is requested, Ecology will require the permittee to perform a fecal coliform study on their outfalls in coordination with the Department of Health.

The Department of Health performed a discharge assessment in 2001-2002, with a final report sent to Ecology on June 24, 2002. Their findings were that no fecal samples greater than 10 organisms/100 ml were found and the outfall does not impact the two nearest geoduck tracks (04200 and 04250). Based on the Department of Health's evaluation they established the minimum closure zone of 300 yards.

COMPARISON OF PROPOSED EFFLUENT LIMITS WITH THE EXISTING PERMIT Issued July 6, 1999

Limits for TSS, BOD₅, Fecal Coliform and Total Residual Chlorine are the same as in the existing permit and are as follows:

Pollutant <u>Parameter</u>	30-day Average <u>Concentration</u>	7-day Average <u>Concentration</u>
Biological Oxygen Demand (BOD ₅)	30 mg/L	45 mg/L
Total Suspended Solids (TSS)	30 mg/L	45 mg/L
Removal of BOD ₅ and TSS	85%	--
Fecal Coliform (geometric means)	200 organisms/ 100 mL	400 organisms/ 100 ml
Total Residual Chlorine	0.1 to 5.0 mg/L	--

OTHER PERMIT CONDITIONS

MONITORING REQUIREMENTS

Monitoring, recording, and reporting are required (WAC 173-220-210 and 40 CFR 122.41) to verify that the treatment processes are functioning correctly and the effluent limitations are being achieved. PTPC applied to reduce the monitoring frequency for outfall 001 for BOD₅ and TSS. The permittee's performance was evaluated for the two year period from January 2002 through December 2003 to determine whether the monitoring frequency for any parameters could be decreased.

For outfall 001, the Long Term Average (LTA) BOD5 was 43% of the Average Monthly Limit (AML). The monitoring frequency in the 1999 permit was five days per week. In accordance with Ecology's policy to allow reduction of monitoring frequency for exemplary performance (Permit Writers' Manual at XIII-13), the BOD monitoring may be reduced to twice a week.

For outfall 001, the LTA TSS was 45% of the AML. The monitoring frequency in the 1999 permit was seven days per week. In accordance with Ecology's policy to allow reduction of monitoring frequency for exemplary performance (Permit Writers' Manual at XIII-13), the TSS monitoring may be reduced to three times a week.

The monitoring schedule is detailed in the proposed permit under Condition S.2. Specified monitoring frequencies take into account the quantity and variability of the discharge, the treatment method, past compliance, significance of pollutants, and cost of monitoring.

LAB ACCREDITATION

With the exception of certain parameters the permit requires all monitoring data to be prepared by a laboratory registered or accredited under the provisions of Chapter 173-50 WAC, *Accreditation of Environmental Laboratories*. The laboratory at this facility is accredited for BOD, TSS, pH, and chlorine residual. The company hires accredited laboratories to perform bioassays and fecal coliform tests.

SANITARY WASTEWATER TREATMENT PLANT OPERATOR CERTIFICATION

The sanitary treatment system has influent pumping, diffused air, and disinfection. With the flow and population equivalence, the system is classified a Class I plant in accordance with Chapter 70.95B RCW. Therefore, the sanitary treatment system must have a Class I certified operator.

REPORTING AND RECORD KEEPING

Condition S3. is based on the authority to specify any appropriate reporting and record keeping requirements to prevent and control waste discharges (WAC 173-220-210).

SPILL PLAN

The Department has determined that the Permittee stores a quantity of chemicals that have the potential to cause water pollution if accidentally released. The Department has the authority to require the Permittee to develop best management plans to prevent this accidental release under section 402(a)(1) of the Federal Water Pollution Control Act (FWPCA) and RCW 90.48.080. The Permittee has developed a plan for preventing the accidental release of pollutants to state waters and for minimizing damages if such a spill occurs. The proposed permit requires the Permittee to update this plan and submit it to the Department.

SOLID WASTE PLAN

The Department has determined that the Permittee has a potential to pollute the waters of the state with leachate of solid waste. This proposed permit requires, under the authority of RCW 90.48.080, that the Permittee update the solid waste plan designed to prevent solid waste from

causing pollution of the waters of the state. The plan must be submitted to the local permitting agency for approval, if necessary, and to the Department.

EFFLUENT MIXING STUDY

The Department has estimated the amount of mixing of the discharge within the authorized mixing zone to determine the potential for violations of the Water Quality Standards for Surface Waters (Chapter 173-201A WAC). The Permittee determined the mixing characteristics of the discharge in a previous permit. No further requirements for modeling will be required at this time.

OUTFALL AND SEWER LINE EVALUATIONS

Proposed permit condition S11. requires the Permittee to conduct an outfall inspection and submit a report detailing the findings of that inspection in the 4th year of the permit. The purpose of the inspection is to determine the condition of the discharge pipe and diffusers and to evaluate the extent of sediment accumulations in the vicinity of the outfall.

Proposed permit condition S11 requires the Permittee to inspect the underground sewer line carrying untreated process wastewater from the main pumping station to the primary clarifier with visual/video prior to the expiration date.

TREATMENT SYSTEM OPERATING PLAN and REMOVAL EFFICIENCY REPORT

In accordance with state and federal regulations, the Permittee is required to take all reasonable steps to properly operate and maintain the treatment system (40 CFR 122.41(e)) and WAC 173-220-150 (1)(g). A treatment system-operating plan was submitted as required by state regulation in the previous permit. It has been determined that the implementation of the procedures in the Treatment System Operating Plan is a reasonable measure to ensure compliance with the terms and limitations in the permit. Special condition S4 will require the permittee to update their Treatment System Operating Plan 180 days after the permit issuance date and after any major modification that changes the influent to the treatment system.

In accordance with WAC 173-220-150 (1)(g), flows or waste loadings shall not exceed approved design criteria. A treatment system engineering study is a requirement of this reissued permit. The data collected for the study will allow an evaluation of the efficiency of the wastewater treatment system and its capabilities and design capacity. Samples of influent and effluent will be analyzed for the conventional pollutants of BOD5, TSS and COD.. Flow monitoring done at the time of sampling will provide information on how the system operates at different hydraulic or organic loading rates. The Permittee will be required to calculate treatment and removal efficiencies from the results of the analysis and submit the data to Ecology. The Department will review the data and compare it to published information on wastewater treatment efficiencies. If it is found that the Permittee's effluent plant is performing below AKART levels, Ecology will require the Permittee to upgrade its wastewater treatment system.

The Department will consider requiring a treatment efficiency study during each permit cycle as a means of continually evaluating the adequacy of the wastewater treatment at this facility.

PRIORITY POLLUTANT SCAN

The Permittee shall sample the final effluent in the second, third, and fourth years of the permit and analyze for the following four categories of priority pollutants:

Metals, Cyanide and Total Phenols
Volatile Compounds
Acid Compounds
Base/Neutral Compounds

In the fourth year of the permit coincident with the above sampling, the Permittee shall also analyze for Pesticides and PCBs. The priority pollutant scan data shall be provided to Ecology with the application for the next permit.

SLIMICIDE CERTIFICATION

The permittee has certified that they do not use pentachlorophenol or trichlorophenol in their slimicides.

GENERAL CONDITIONS

General Conditions are based directly on state and federal law and regulations and have been standardized for all individual industrial NPDES permits issued by the Department.

Condition G1 requires responsible officials or their designated representatives to sign submittals to the Department. Condition G2 requires the Permittee to allow the Department to access the treatment system, production facility, and records related to the permit. Condition G3 specifies conditions for modifying, suspending or terminating the permit. Condition G4 requires the Permittee to apply to the Department prior to increasing or varying the discharge from the levels stated in the permit application. Condition G5 requires the Permittee to construct, modify, and operate the permitted facility in accordance with approved engineering documents. Condition G6 prohibits the Permittee from using the permit as a basis for violating any laws, statutes or regulations. Conditions G7 and G8 relate to permit renewal and transfer. Condition G9 requires the Permittee to control its production in order to maintain compliance with its permit. Condition G10 prohibits the reintroduction of removed substances back into the effluent. Condition G11 states that the Department will modify or revoke and reissue the permit to conform to more stringent toxic effluent standards or prohibitions. Condition G12 incorporates by reference all other requirements of 40 CFR 122.41 and 122.42. Condition G13 notifies the Permittee that additional monitoring requirements may be established by the Department. Condition G14 requires the payment of permit fees. Condition G15 describes the penalties for violating permit conditions.

PERMIT ISSUANCE PROCEDURES*PERMIT MODIFICATIONS*

The Department may modify this permit to impose numerical limitations, if necessary to meet Water Quality Standards for Surface Waters, Sediment Quality Standards, or Water Quality

Standards for Ground Waters, based on new information obtained from sources such as inspections, effluent monitoring, outfall studies, and effluent mixing studies.

The Department may also modify this permit as a result of new or amended state or federal regulations.

RECOMMENDATION FOR PERMIT ISSUANCE

This proposed permit meets all statutory requirements for authorizing a wastewater discharge, including those limitations and conditions believed necessary to control toxics, protect human health, aquatic life, and the beneficial uses of waters of the State of Washington. The Department proposes that this proposed permit be issued for five (5) years.

REFERENCES FOR TEXT AND APPENDICES

Environmental Protection Agency (EPA)

1992. National Toxics Rule. Federal Register, V. 57, No. 246, Tuesday, December 22, 1992.

1991. Technical Support Document for Water Quality-based Toxics Control. EPA/505/2-90-001.

1988. Technical Guidance on Supplementary Stream Design Conditions for Steady State Modeling. USEPA Office of Water, Washington, D.C.

1985. Water Quality Assessment: A Screening Procedure for Toxic and Conventional Pollutants in Surface and Ground Water. EPA/600/6-85/002a.

1983. Water Quality Standards Handbook. USEPA Office of Water, Washington, D.C.

Tsivoglou, E.C., and J.R. Wallace.

1972. Characterization of Stream Reaeration Capacity. EPA-R3-72-012. (Cited in EPA 1985 op.cit.)

Washington State Department of Ecology.

1994. Permit Writer's Manual. Publication Number 92-109, updated through July 2002.

Washington State Department of Ecology.

Laws and Regulations(<http://www.ecy.wa.gov/laws-rules/index.html>)

Permit and Wastewater Related Information
(<http://www.ecy.wa.gov/programs/wq/wastewater/index.html>)

Wright, R.M., and A.J. McDonnell.

1979. In-stream Deoxygenation Rate Prediction. Journal Environmental Engineering Division, ASCE. 105(E2). (Cited in EPA 1985 op.cit.)

APPENDIX A--PUBLIC INVOLVEMENT INFORMATION

The Department has tentatively determined to reissue a permit to the applicant listed on page 1 of this fact sheet. The permit contains conditions and effluent limitations which are described in the rest of this fact sheet.

The Department will publish a Public Notice of Draft (PNOD) on (date) in (name of publication) to inform the public that a draft permit and fact sheet are available for review. Interested persons are invited to submit written comments regarding the draft permit. The draft permit, fact sheet, and related documents are available for inspection and copying between the hours of 8:00 a.m. and 5:00 p.m. weekdays, by appointment, at the regional office listed below. Written comments should be mailed to:

Robert Carruthers
Department of Ecology
P.O. Box 47600
Olympia, WA 98504-7600

Any interested party may comment on the draft permit or request a public hearing on this draft permit within the thirty (30) day comment period to the address above. The request for a hearing shall indicate the interest of the party and reasons why the hearing is warranted. The Department will hold a hearing if it determines there is a significant public interest in the draft permit (WAC 173-220-090). Public notice regarding any hearing will be circulated at least thirty (30) days in advance of the hearing. People expressing an interest in this permit will be mailed an individual notice of hearing (WAC 173-220-100).

Comments should reference specific text followed by proposed modification or concern when possible. Comments may address technical issues, accuracy and completeness of information, the scope of the facility's proposed coverage, adequacy of environmental protection, permit conditions, or any other concern that would result from issuance of this permit.

The Department will consider all comments received within thirty (30) days from the date of public notice of draft indicated above, in formulating a final determination to issue, revise, or deny the permit. The Department's response to all significant comments is available upon request and will be mailed directly to people expressing an interest in this permit.

Further information may be obtained from the Department by telephone, (350) 407-6954, or by writing to the address listed above.

This permit and fact sheet were written by Robert Carruthers.

APPENDIX B--GLOSSARY

Acute Toxicity--The lethal effect of a compound on an organism that occurs in a short period of time, usually 48 to 96 hours.

AKART-- An acronym for “all known, available, and reasonable methods of treatment”.

Ambient Water Quality--The existing environmental condition of the water in a receiving water body.

Ammonia--Ammonia is produced by the breakdown of nitrogenous materials in wastewater. Ammonia is toxic to aquatic organisms, exerts an oxygen demand, and contributes to eutrophication. It also increases the amount of chlorine needed to disinfect wastewater.

Average Monthly Discharge Limitation --The average of the measured values obtained over a calendar month's time.

Best Management Practices (BMPs)--Schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural and/or managerial practices to prevent or reduce the pollution of waters of the State. BMPs include treatment systems, operating procedures, and practices to control: plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. BMPs may be further categorized as operational, source control, erosion and sediment control, and treatment BMPs.

BOD₅--Determining the Biochemical Oxygen Demand of an effluent is an indirect way of measuring the quantity of organic material present in an effluent that is utilized by bacteria. The BOD₅ is used in modeling to measure the reduction of dissolved oxygen in a receiving water after effluent is discharged. Stress caused by reduced dissolved oxygen levels makes organisms less competitive and less able to sustain their species in the aquatic environment. Although BOD is not a specific compound, it is defined as a conventional pollutant under the federal Clean Water Act.

Bypass--The intentional diversion of waste streams from any portion of a treatment facility.

Chlorine--Chlorine is used to disinfect wastewaters of pathogens harmful to human health. It is also extremely toxic to aquatic life.

Chronic Toxicity--The effect of a compound on an organism over a relatively long time, often 1/10 of an organism's lifespan or more. Chronic toxicity can measure survival, reproduction or growth rates, or other parameters to measure the toxic effects of a compound or combination of compounds.

Clean Water Act (CWA)--The Federal Water Pollution Control Act enacted by Public Law 92-500, as amended by Public Laws 95-217, 95-576, 96-483, 97-117; USC 1251 et seq.

Compliance Inspection - Without Sampling--A site visit for the purpose of determining the compliance of a facility with the terms and conditions of its permit or with applicable statutes and regulations.

Compliance Inspection - With Sampling--A site visit to accomplish the purpose of a Compliance Inspection - Without Sampling and as a minimum, sampling and analysis for all parameters with limits in the permit to ascertain compliance with those limits; and, for municipal facilities, sampling of influent to ascertain compliance with the 85 percent removal requirement. Additional sampling may be conducted.

Composite Sample--A mixture of grab samples collected at the same sampling point at different times, formed either by continuous sampling or by mixing discrete samples. May be "time-composite"(collected at constant time intervals) or "flow-proportional" (collected either as a constant sample volume at time intervals proportional to stream flow, or collected by increasing the volume of each aliquot as the flow increased while maintaining a constant time interval between the aliquots.

Construction Activity--Clearing, grading, excavation and any other activity which disturbs the surface of the land. Such activities may include road building, construction of residential houses, office buildings, or industrial buildings, and demolition activity.

Continuous Monitoring --Uninterrupted, unless otherwise noted in the permit.

Critical Condition--The time during which the combination of receiving water and waste discharge conditions have the highest potential for causing toxicity in the receiving water environment. This situation usually occurs when the flow within a water body is low, thus, its ability to dilute effluent is reduced.

Dilution Factor--A measure of the amount of mixing of effluent and receiving water that occurs at the boundary of the mixing zone. Expressed as the inverse of the percent effluent fraction e.g., a dilution factor of 10 means the effluent comprises 10% by volume and the receiving water 90%.

Engineering Report--A document which thoroughly examines the engineering and administrative aspects of a particular domestic or industrial wastewater facility. The report shall contain the appropriate information required in WAC 173-240-060 or 173-240-130.

Fecal Coliform Bacteria--Fecal coliform bacteria are used as indicators of pathogenic bacteria in the effluent that are harmful to humans. Pathogenic bacteria in wastewater discharges are controlled by disinfecting the wastewater. The presence of high numbers of fecal coliform bacteria in a water body can indicate the recent release of untreated wastewater and/or the presence of animal feces.

Grab Sample--A single sample or measurement taken at a specific time or over a short period of time as is feasible.

Industrial Wastewater--Water or liquid-carried waste from industrial or commercial processes, as distinct from domestic wastewater. These wastes may result from any process or activity of industry, manufacture, trade or business, from the development of any natural resource, or from animal operations such as feed lots, poultry houses, or dairies. The term includes contaminated storm water and, also, leachate from solid waste facilities.

Major Facility--A facility discharging to surface water with an EPA rating score of > 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

Maximum Daily Discharge Limitation--The highest allowable daily discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. The daily discharge is calculated as the average measurement of the pollutant over the day.

Method Detection Level (MDL)--The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is above zero and is determined from analysis of a sample in a given matrix containing the analyte.

Minor Facility--A facility discharging to surface water with an EPA rating score of < 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

Mixing Zone--An area that surrounds an effluent discharge within which water quality criteria may be exceeded. The area of the authorized mixing zone is specified in a facility's permit and follows procedures outlined in state regulations (Chapter 173-201A WAC).

National Pollutant Discharge Elimination System (NPDES)--The NPDES (Section 402 of the Clean Water Act) is the Federal wastewater permitting system for discharges to navigable waters of the United States. Many states, including the State of Washington, have been delegated the authority to issue these permits. NPDES permits issued by Washington State permit writers are joint NPDES/State permits issued under both State and Federal laws.

pH--The pH of a liquid measures its acidity or alkalinity. A pH of 7 is defined as neutral, and large variations above or below this value are considered harmful to most aquatic life.

Quantitation Level (QL)-- A calculated value five times the MDL (method detection level).

Responsible Corporate Officer-- A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or have gross annual sales or expenditures exceeding \$25 million (in second quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures (40 CFR 122.22).

Technology-based Effluent Limit--A permit limit that is based on the ability of a treatment method to reduce the pollutant.

Total Suspended Solids (TSS)--Total suspended solids is the particulate material in an effluent. Large quantities of TSS discharged to a receiving water may result in solids accumulation. Apart from any toxic effects attributable to substances leached out by water, suspended solids may kill fish, shellfish, and other aquatic organisms by causing abrasive injuries and by clogging the gills and respiratory passages of various aquatic fauna. Indirectly, suspended solids can screen out light and can promote and maintain the development of noxious conditions through oxygen depletion.

State Waters--Lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, and all other surface waters and watercourses within the jurisdiction of the state of Washington.

Stormwater--That portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, pipes, and other features of a storm water drainage system into a defined surface water body, or a constructed infiltration facility.

Upset--An exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the Permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, lack of preventative maintenance, or careless or improper operation.

Water Quality-based Effluent Limit--A limit on the concentration of an effluent parameter that is intended to prevent the concentration of that parameter from exceeding its water quality criterion after it is discharged into a receiving water.

APPENDIX C--TECHNICAL CALCULATIONS

Several of the Excel[®] spreadsheet tools used to evaluate a discharger's ability to meet Washington State water quality standards can be found on the Department's homepage at <http://www.ecy.wa.gov>.

APPENDIX D--RESPONSE TO COMMENTS

The only comments received were from the permittee, Port Townsend Paper. Their comments are included verbatim below. Ecology has made all the requested changes. The introduction to the permittee's comments best explains the background and circumstances concerning the comments made. Ecology does not believe any of the changes requested substantially alter the permit or fact sheet. Ecology agrees with the permittee's assessment that the permit issuing process needs adjustment such that general readability review occurs upfront in the process and not at the tale end where unintended but consequential changes may result.

COMMENTS FROM PORT TOWNSEND PAPER:Re: Port Townsend Paper NPDES Permit WA 000092-2 Comments

Dear Mr. Carruthers:

Thank you for the opportunity to comment on Port Townsend Paper Corporation's NPDES permit and Facility Fact Sheet.

The following are Port Townsend Paper Corporation's comments on NPDES Permit # WA 000092-2 and comments on the Fact Sheet for the facility. These documents were published for public comment on July 21, 2004 and Port Townsend Paper is responding within the 30-day public comment period.

Port Townsend Paper Corporation has reviewed NPDES Draft Permit WA 000092-2 and the accompanying Fact Sheet. We respectfully submit the following specific comments to language in the Draft Permit and Fact Sheet. In addition, we would like to make a general comment on the changes that were made to the Permit and Fact Sheet following review and negotiation of these documents with the Washington State Department of Ecology. It was Port Townsend Paper's understanding that any changes made following this review would be for style and formatting only. Instead, in reviewing the changes, we found that in several places language changes substantively changed the meaning of the permit. It is these changes that we are commenting on for the first time. Un-reviewed changes made immediately before publication have the potential to unintentionally but substantively change the permit or fact sheet. In a worst-case scenario this might put the Permittee in a position of having to formally appeal permit issuance. These types of changes may also misrepresent the Department of Ecology's position, as the permit writer is also not given the opportunity for a final pre-publication review. This potential problem is best avoided by positioning the style and format review at the front end of the overall review process. In this way any changes made in the interest of readability can be reviewed for technical merit and accuracy before publication.

PERMIT CONDITIONS

S3-D The current, previously un-reviewed wording deviates from the language of the Federal Regulation and should read as follows:

"If the Permittee monitors any pollutant more frequently than required by this permit, using test procedures specified by condition S2. of this permit, then the results of this monitoring shall be included in the calculation and reporting of the data submitted in the Permittee's self-monitoring reports."

S4-A-4 We request that the language of this section be changed to match the previously reviewed section language, as follows:

“A plan for monitoring and treating and/or controlling the discharge of maintenance-related materials.”

There is no requirement for submittal of this plan.

S5 - 2 We request that the language of paragraph one of this section be changed to match the previously reviewed section language to read, “...and (9) steps taken or planned to reduce, eliminate, and prevent reoccurrence of the bypass.” This wording matches that found in the NPDES permits of other Washington facilities.

S5 - 3 We request that this section be changed to match previously reviewed section language to read, “Bypass For Essential Maintenance Without the Potential to Cause Violation of Permit Limits or Conditions -- Bypass is authorized if it is for essential maintenance and does not have the potential to cause violations of limitations or other conditions of the permit, or adversely impact public health as determined by the Department prior to the bypass.” The change that was made by adding the word “only” in the published document substantively changes the meaning of the paragraph.

FACT SHEET

Page 1 In paragraph three, under the heading “INTRODUCTION”, the text states, “The fact sheet and draft permit have been reviewed by the Permittee. Errors and omissions identified in this review have been corrected before going to public notice.” Editing and text changes that were made after Port Townsend Paper Corporation had reviewed the fact sheet and draft permit, resulted in substantive changes to these documents. Port Townsend Paper Corporation was not given the opportunity to review or comment on these changes prior to the documents going to public notice.

Page 4 Please change heading to read, “Summary of Previous Compliance with the Existing Permit” as was worded in the previously reviewed document.

Page 11 Under section heading “SURFACE WATER QUALITY-BASED LIMITS FOR NUMERIC CRITERIA,” in the first sentence under this heading, please delete the phrase “(safety limits)” as safety limits are not a basis for water quality criteria.

Page 12 Under section beginning, “WAC 173-201A-100(5) requires that water quality criteria not be violated outside the boundary of a mixing zone” the sentence following this heading should be changed to read, “The reasonable potential to exceed analyses in Appendix C makes this demonstration,” as was reviewed and agreed upon by Port Townsend Paper Corporation and the Department of Ecology.

Page 12 We request that, in the section following the one reference above, beginning in the second sentence, the text of the section should be changed to read:

“Ecology recognizes that at any given time, the effluent plume actually utilizes only a portion of the acute and chronic mixing zone, which effectively minimizes the volume of water actually involved in mixing. Because tidal currents change direction, the entire volume of the zone is

needed to accommodate changes in plume orientation. Ecology also recognizes that the plume rises through the water column as it mixes and that consequently most of the water volume in the mixing zone below the depth at which the mixed effluent traps, is not involved. It is impractical to attempt to specify in the permit the actual, much more limited volume in which the dilution occurs as the plume rises, traps and moves with the current. However, the conservative modeled dilution factors implicitly reduce the mixing zone volume from the volume described in the permit to just the volume actually utilized by the plume. There are no concerns with the mixing zone encroaching onto sensitive habitat or overlapping with other mixing zones. For these reasons, the size of the mixing zone and the concentrations of the pollutants present are appropriately and effectively minimized.”

This is the text that was reviewed by Port Townsend Paper Corporation as developed by the Department of Ecology. The un-reviewed published wording is not clear, and causes confusion about the method of determining mixing zones.

Page 23 Under “OUTFALL 005”, subheading “DERIVATION OF TECHNOLOGY-BASED EFFLUENT LIMITS”, the first sentence should be changed to read, “Unlike the technology based industrial effluent limits which are keyed to various production processes...” because the phrase “which are” was inadvertently omitted from the Fact Sheet.

Page 24 Under the same subheading as above, the paragraph following the pollutant limit table should be changed to the wording that was previously reviewed by Port Townsend Paper Corporation, “The concentration limits for BOD5, TSS, and fecal coliform bacteria are applied to PTPC's outfall 005. Because the discharge is very small (0.0025 MGD), and because the discharge ultimately is into the outfall 001 shared by the process waste water discharges with much higher BOD and TSS loadings, load limits are not imposed.” The published language is not clear.

Page 24 In the first sentence, under the heading, “SURFACE WATER QUALITY-BASED LIMITS FOR NUMERIC CRITERIA,” the phrase “(are too high)” should be deleted, as it has no meaning in this context.

Page 24 Under the subheading “Toxic Pollutants”, following the semicolon, the sentence should read, “... the discharge shows no reasonable potential to exceed the existing chlorine criteria...” the words “have a” should be deleted. This appears to be a typographical error.

Page 27 In the first sentence following the heading “SOLID WASTE MANAGEMENT PLAN” the first sentence should read, “The Department determined that the Permittee has a potential to pollute the waters of the state with leachate from solid waste.” The word “to” was added to correct a typographical error.

General comment re the definitions in Appendix B -- GLOSSARY of the Fact Sheet

NPDES permits in the state of Washington have included a Glossary in the Fact Sheet as a routine, boilerplate appendix. The glossary is a part of the permit template used by permit writers. Numerous changes were made to the Glossary in the Fact Sheet for Port Townsend Paper Corporation. These changes were made after the final review by Port Townsend Paper and the permit writer. Many of the changes are substantial, and some result in incorrect assertions.

In addition to the changes, new definitions for two terms have been added, and the definitions are incorrect and not matched by definitions in state or federal regulations or law.

The Response to Comments should acknowledge the changes that had been made, the need to correct those changes, and then include a correct Appendix B -- GLOSSARY, matching those used by Ecology in other permits.

The following comments relate to specific terms and definitions in the Glossary that went out for public comment.

Class A Water Body is defined in the Glossary as follows:

Class A Water Body--The quality of this water meets or exceeds the safety requirement for all or substantially all uses, such as the following: (i) domestic, industrial, and agricultural water supply; (ii) stock watering; (iii) fish and shellfish rearing, spawning, and harvesting; (iv) wildlife habitat; (v) contact recreation, sport fishing, boating, and aesthetic enjoyment; and (vi) commerce and navigation.

The definition should be deleted. It does not exist in other NPDES permits in the state, and it is not a term with a general definition in statute or regulation. There is nothing in the description in the Fact Sheet that necessitates inclusion of a definition. Should Ecology still feel compelled to include a definition, the following should suffice:

Class A Marine Water Body--A marine water body that has been designated as Class A in WAC 173-201A-140. It is the intent of such designation that water quality of this class shall meet or exceed the requirements for all or substantially all characteristic uses described in WAC 173-201A-030(2)(b) and the specific water quality criteria described in WAC 173-201A-030(2)(c) shall be applied.

Source: paraphrased from WAC 173-201A-030 and 030(2)(a, b and c)

Compliance Inspection - With Sampling.

The change in the definition added nothing and should be restored to the original definition used in other permits.

Construction Activity

The definition gained nothing from the revision, and in fact had a substantial change by changing "demolition activity." to "demolition of such building(s)." The definition should be restored to the original definition used in other permits.

Effluent is defined in the Glossary as follows:

Effluent--The outflow of liquid chemical, physical, or biological waste from a sewer, treatment tank, or transfer pipe outfall.

The definition should be deleted. It does not exist in other NPDES permits in the state, and it is not a term with a general definition in state or federal statute or regulation. There is no confusion with the usage of the word in the permit or Fact Sheet and no need for a definition. If

Ecology wishes to include a definition, the following from the "EPA Terms of the Environment" is suitable³:

Effluent--Wastewater-treated or untreated-that flows out of a treatment plant, sewer or industrial outfall.

Source: U.S. EPA "Terms of Environment" (accessible by Web search)

Mixing Zone The definition in the Glossary was changed from the definition used in other permits. The change provided no clarity and it introduced factual errors rendering the definition incorrect. Specifically it states that pollutants may be measured in mixing zones at higher concentrations than.... limits imposed by the permit.... The definition should be restored to the original definition used in other permits, which is substantially the same as the definition found in Chapter 173-201A WAC.

pH The definition in the Glossary was changed from the definition used in other permits. The change provided no clarity and it introduced factual errors rendering the definition incorrect. Specifically it changed the definition from saying that "large variations above or below a pH of 7 are considered harmful to most aquatic life", to saying that "any variations above or below a pH of 7 are harmful." The definition should be restored to the original definition used in other permits, which is descriptive of pH and consistent with the standards for pH found in Chapter 173-201A WAC.

Responsible Corporate Officer The definition in the Glossary was changed from the definition used in other permits. The term "legally binding the entity" is not a part of 40 CFR 122.22. The definition should be restored to the original definition used in other permits, which is derived from 40 CFR 122.22. The minor change from "have" to "having" in the fifth line of the definition is acceptable.

Technology-based Effluent Limit The definition in the Glossary was changed from the definition used in other permits. The change provided no clarity and introduced factual errors rendering the definition incorrect. Specifically it changed the definition to focus on reducing the concentration of pollutants, which technology-based limits do not necessarily do. For example, some technology based effluent limits are entirely based on mass-load limits keyed to production, which may be attained even if concentrations go up. The definition should be restored to the original definition used in other permits.

Total Suspended Solids (TSS) The definition in the Glossary was changed from the definition used in other permits. The change produced only minor clarity and was not needed. The definition should be restored to the original definition used in other permits.

Stormwater The definition in the Glossary was changed from the definition used in other permits. The change provided no clarity and introduced factual errors rendering the definition incorrect. Specifically it changed the word "infiltration" to "filtration" when "infiltration" was

³ Note that the definition in the referenced document also included the following sentence; "Generally refers to wastes discharged into surface waters." This part was intentionally removed from our recommendation because we realize that Ecology often writes permits for effluents that are discharged to land.

the correct word to use. The definition should be restored to the original definition used in other permits which is identical to the definition in Chapter 173-201A WAC.

Water Quality-based Effluent Limit The definition in the Glossary was changed from the definition used in other permits. The change provided no clarity and introduced factual errors rendering the definition incorrect. Specifically it changed the concept from being applicable to a particular receiving water to being applicable to any receiving water. The definition should be restored to the original definition used in other permits.

Please call me at (360) 379-2079 if you have any questions or wish to discuss any of our comments.

Sincerely,

Alice McConaughy

Environmental Project Manager